

Name: KEY Day 9 Algebra Review Functions

Determine if the following relation is a function.

1.  $(1, 3), (2, 4), (5, 7)$

Yes

2.

x	Y
1	3
1	4
2	7
-3	-2

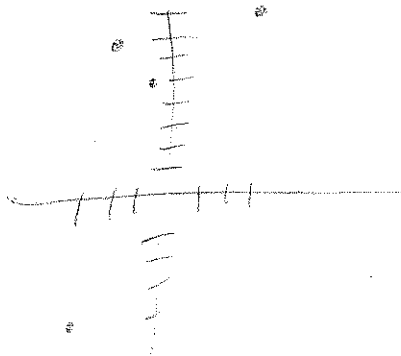
NO

3.  $f(5) = 7, f(2) = 1, f(1) = 2, f(2) = 5$

NO

4. Graph the following points on the Cartesian Plane and determine if they form a function.

$(-2, 7), (3, 8), (-1, 6), (-3, -4)$



Yes.

5. Determine the Domain and Range of the data in number 4.

$$D = \{-2, 3, -1, -3\} \quad R = \{7, 8, 6, -4\}$$

6. If  $f(x) = 3x + 7$  and  $g(x) = x^2 - 2x$ . Find the following.

a.  $f(3)$

$$(13)$$

b.  $f(-2)$

$$(1)$$

c.  $g(5)$

$$(15)$$

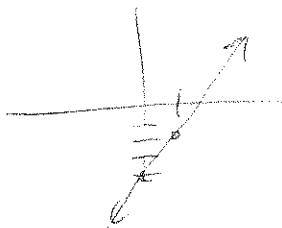
d.  $g(2c)$

$$(2c)^2 - 2(2c) \\ 4c^2 - 4c$$

e.  $f(2m-5)$

$$3(2m-5) + 7 \\ 6m - 15 + 7 \\ 6m - 8$$

7. Graph the following linear function  $f(x) = 3x - 4$ .



8. Determine the slope and y-intercept of the following function  $f(x) = \frac{1}{2}x - 3$

$$m = \frac{1}{2}$$

$$y\text{-int} = -3$$

9. Use the following information to find a linear function for the following data.

$$\begin{matrix} f(3) = 5 & \text{and} & f(-4) = 7 \\ x & & x \\ y & & y \end{matrix}$$

$$m = \frac{7-5}{-4-3} = \frac{2}{-7} \\ 7 = \frac{-2}{7}(-4) + b \\ 7 = \frac{8}{7} + b$$

$$b = 7 - \frac{8}{7} \\ = \frac{49}{7} - \frac{8}{7} \\ = \frac{41}{7}$$

$$f(x) = \frac{-2}{7}x + \frac{41}{7}$$

$$x = \frac{-(-9) \pm \sqrt{(-9)^2 - 4(4)(4)}}{2(4)}$$

$$x = \frac{9 \pm \sqrt{81 - 64}}{8}$$

$$x = \frac{9 \pm \sqrt{17}}{8}$$

10. Determine the x-intercepts of the following function.

$$f(x) = 4x^2 - 9x + 4$$

$$0 = 4x^2 - 9x + 4$$

$$0 = ( \quad ) ( \quad )$$

11. Find the vertex, axis of symmetry, x-int, and y-int for the following quadratic function. Also graph the function

$$f(x) = 3x^2 - 7x - 20$$

$$x = \frac{-(-7)}{2(3)} = \frac{7}{6}$$

Axis of Sym  $x = \frac{7}{6}$

Vertex  $(\frac{7}{6}, \frac{259}{12})$

$$y = 3\left(\frac{7}{6}\right)^2 - 7\left(\frac{7}{6}\right) - 20$$

$$= \frac{3}{1} \left( \frac{49}{36} \right) - \frac{49}{6} - 20$$

$$= \frac{49}{12} - \frac{49}{6} - \frac{20}{1}$$

$$= \frac{49}{12} - \frac{98}{12} - \frac{240}{12}$$

$$= \frac{-289}{12}$$

x-int  $-\frac{5}{3}$  and 4

y-int -20

$$0 = 3x^2 - 7x - 20$$

$$0 = (3x + 5)(x - 4)$$

$$3x + 5 = 0$$

$$3x = -5$$

$$x = -\frac{5}{3}$$

$$x - 4 = 0$$

$$x = 4$$

